

In concluding this synopsis of Dr. Ultzmann's monograph we can heartily recommend it to the study of all who have to treat the disorders which it discusses. Though many of its suggestions are not novel, all of them are sensible, clear, and instructive. One would have to know a great deal about pyuria not to be benefited by them.

C. W. D.

ART. XXVI.—*The International Encyclopædia of Surgery. A Systematic Treatise on the Theory and Practice of Surgery, by Authors of Various Nations.* Edited by JOHN ASHHURST, Jr., M.D., Professor of Clinical Surgery in the University of Pennsylvania. In Six Volumes. Vol. III., 8vo. pp. 760. New York: William Wood & Co.

In this volume we find a continuation of the study of injuries and diseases of the various tissues. Two short articles open the volume. The first, by Dr. P. S. Connor, on *Muscles, Tendons, and Fasciæ*, is excellent in quality. The second, by Mr. Bellamy, although of equal quality, leaves much to be said on the subject of morbid growths of the lymphatic glands.

The article which follows, on *Injuries of Bloodvessels*, by the late John A. Lidell, M.D., of New York, is one of the most important features of the volume, and when combined with the article on Aneurism, by Mr. Barwell, constitutes a most valuable addition to the literature of this special branch of surgery. The author's qualifications for this task are indicated in the titles appended to his name. The opportunities offered for a study of these affections in a surgical service at Bellevue Hospital, and as surgeon in charge of the Stanton Hospital, and later as inspector of the Medical and Hospital Department of the Army of the Potomac, must have been ample.

The author is of the opinion that hemorrhage is the most serious of all complications attending wounds in general, and that more lives are lost from it than from all other consequences combined. Every one who aspires to become a surgeon is admonished to divest himself of all fear, and in the words of Lister, to "learn to look boldly on the open mouths of arteries." The writer seems to us to have exaggerated somewhat the frequency with which primary hemorrhage becomes an important factor in the management of larger wounds. A military service is undoubtedly rich in the experience of this class of complications; in civil practice, on the other hand, one can hardly fail to be impressed with the comparative rarity of danger to life from hemorrhage. The most extensive and ghastly injuries, such as occur in railway accidents, appear to be singularly devoid of this popularly supposed source of danger. Nevertheless, the preliminary remarks on the importance of this subject should be thoughtfully read by every young surgeon, and the advice carefully to study recorded cases should be studiously followed. Dr. Otis is quoted as saying, "It is hardly possible to unduly multiply illustrations of the management of wounded vessels." It is indeed true "by thorough special training and by patiently fortifying himself from the experience of past generations that the surgeon acquires the boldness and positiveness, the promptness and dexterity which are demanded in the treatment of wounded bloodvessels."

It should not be forgotten, however, that the rules for treating wounds of vessels are comparatively simple, and resolve themselves mainly into the one grand principle of securing with a ligature both ends of a wounded artery. A careful perusal of the various applications of this principle as ably set forth in Dr. Lidell's article with the aid of almost innumerable cases is well worth the thoughtful attention of the reader.

The directions for action in bleeding from large vessels are judicious, and the cases cited show how much can be accomplished by direct pressure. In gunshot injuries of large vessels, several instances are given where the finger was inserted directly into the wound of the vessel, and life thus saved. The advantages to be gained by the removal of warm clots and the exposure of the bleeding surface to the air are duly insisted upon, and the worthless and even injurious action of the salts of iron, so often employed by unskilled hands, as abundantly illustrated during the late war, is forcibly pointed out. The author justly restricts the use of these drugs to cases of parenchymatous hemorrhage occurring in open wounds.

The section devoted to the repair of arteries after the application of the ligature, is exceedingly brief. Although it is evidently the intention of the author to confine himself to the more practical features of this branch of surgery, a more detailed statement of the peculiar conditions which modify the process of repair in arteries would have been appreciated by the surgeon, as well as the pathologist, and would have also added greatly to the literary value of this article. Such terms as "plastic lymph" we supposed had been consigned to the garret of surgical pathology. This want is but partially supplied in the papers which follow.

Although animal ligatures are evidently preferred by the author to all others, and it must be allowed that they fully deserve the popularity which they have attained, it should not be forgotten that fine silk or hempen thread can be, when cut short, left in the wound, with every prospect of being disintegrated and absorbed during the healing process, and at the same time afford a safer and more effectual ligature in larger and deeply seated vessels. A glance at other modes of securing vessels is sufficient to re-establish in one's mind the undisputed sway of the ligature. Sir James Simpson's reproach that the ligature left pieces of dead flesh beyond it in the wound has had the sting removed from it by Lister.

The transfusion craze seems temporarily to have subsided, probably owing to the difficulties, not to say dangers, attending the methods hitherto advocated. The experiments of the physiologists show what startling changes may be brought about in the blood of animals simply by the re-introduction of a small quantity of their own blood into the circulation by the liberation of the fibrin ferment. Such dangers have not been experienced, as far as we are aware, in the human subject. The hope that the period following a severe loss of blood may be safely bridged over, is always a good excuse for delay in performing an operation in which few surgeons have had experience. A class of cases is pointed out in this paper where the operation would be clearly indicated, examples of which came under the author's own military experience, cases in which anæmia and general debility did not yield to the most skilful treatment, the patients perishing from exhaustion a considerable number of days after the bleeding had been arrested. We have grave doubts about the value of any instrument hitherto devised for this purpose. The instrument of the future must be simple in construction and action, must be independent of the donor, and enable the surgeon to devote his whole attention to the patient.

The details of treatment in the cases of punctured wounds of arteries are carefully given; even in the case of such injury as wound of the internal mammary artery. We can offer personal experience of the difficulties attending an attempt to secure this vessel; the advice given to tampon the wound is, we presume, that which must generally be followed in these cases.

Next in order contused wounds of arteries are mentioned with the complications which may arise from an occlusion of the vessel. The advice to amputate at the point of injury in a lacerated wound as soon as gangrene appears at the toes or fingers of the extremity injured, is, we think, good, although a policy not generally recognized. No less than twelve pages are devoted to that serious accident rupture, of the axillary artery. It is interesting to note that, in thirty-four cases presented, there were but eight recoveries, and in four of these no treatment whatever was employed. The author, although he does not swerve from the old, and we believe best surgical advice, to take the bull by both horns, that is, to cut down and tie both ends of the injured vessel, nevertheless suggests elsewhere the propriety of attempting some of the various methods of compression before resorting to operative procedures. There are, undoubtedly, occasions when the latter plan would have obvious disadvantages, as in the case of laceration of vessels caused by fractures which would thus be converted into compound fractures. This objection has less weight where antiseptic precautions can be thoroughly carried out, but we presume there are few surgeons who would not resort to compression first.

The author's military experience has enabled him to give an unusually interesting chapter on the gunshot wounds of arteries. The section devoted to the wounds of veins contains many valuable suggestions. Among them we note the advice of Langenbeck to tie the accompanying artery when a large vein has been wounded and is bleeding. We had supposed it almost unnecessary to give the advice to tie the chief veins in cases of amputation, as such is to-day the almost universal custom. We do not see mentioned, however, the proposition to apply the ligature to the main trunk when symptoms of pyemia are developed, and thus cut off the supply of septic material from the putrid thrombus. We believe this advice has not yet been followed to any extent, but the suggestion nevertheless merits a trial.

Thirty cases of entrance of air into the veins are mentioned. The cause of death is, according to the author, the presence of air in the right ventricle, preventing the closure of the tricuspid and semilunar valves, and allowing the air to reach the pulmonary arteries, fatal syncope coming on from a deficient supply of blood to the brain and nervous centres. According to Cohnheim, death occurs solely from the presence of a globular mass of air in the right heart preventing contraction of the heart, which compresses slightly the air, but cannot force it onward. Cohnheim says: "When we reflect that more than one-half of the bloodvessels of the lung can be shut out from the circulation without injury to the rest, we see that genuine air embolism does not deserve the bad reputation which it has." A large quantity of air can be introduced into the veins of an animal, provided that it be introduced slowly. This is also true of fat embolism, which by the way we do not find mentioned in the article, namely: that a large amount of fat must be let loose at once to do any injury, and that death does not occur nearly so often as has been supposed from this cause.

The subjects which follow are traumatic aneurism, gangrene from

arterial obstruction, hæmophilia, and the different varieties of hemorrhage. The article closes with a chapter on the "Deligation of Arteries." Why the old term ligature, or the verb "to tie," has been so universally abandoned by American writers we fail to understand. "Ligation" and "Deligation" are, of course, intended to describe the act of tying, but "ligature" can also be used in this sense, and possesses, to ourselves at least, the additional advantage of being employed in the most classical works. "To ligature" and "to ligate" are, we presume, equally incorrect, but the latter term has always jarred upon our sensibilities as having a peculiarly pedantic flavour; but when we find that it leads to such expressions as "the ligation came away on the ninth day," a phrase which appeared recently in a leading journal, we feel that our objections are based upon something more than a mere matter of taste.

The advice to tie the larger arteries with two ligatures and to divide the vessel midway between them, so that both ends may retract within the sheath, is in harmony with the process of repair in arteries, and will be more generally adopted, we believe, when that process is better understood. This part of the article is illustrated by some excellent woodcuts taken from Sédillot, and is further enriched by the report of many valuable cases.

The subject of the next paper is the *Surgical Diseases of the Vascular System*, and is written by Dr. John A. Wyeth, of New York. The author begins with an account of phlebitis and arteritis, devoting special attention to the inflammation of arteries in syphilis, and giving the results of a considerable amount of original and histological work. It is an encouraging sign that work of this character is given a place in an English or American surgical work, indicating as it does the fact that scientific study is now clearly recognized as essential to a proper understanding and treatment of disease. Nothing could better illustrate this point than the pages devoted to syphilitic arteritis. In reading the views given by the various authors quoted, on the changes in the arterial coats in inflammation, one cannot help being struck with the prominence given to the intima as the layer chiefly concerned in the occlusion of the lumen of the vessel. An explanation may be discovered in the custom of examining chiefly transverse sections of the vessel, which naturally gives rise to the impression that the growth seen in the interior proceeds from the adjacent intima. This coat, it should be remembered, is in health a non-vascular membrane of extreme delicacy, whereas the media makes up the greater part of the thickness of the vessel wall, is vascular, and contains cell structures capable of more voluminous changes. We are of the opinion that vertical sections would show more frequent encroachments upon this interior growth from the vascular wall than are now supposed to occur. The other important features of this article are an account of cases of cirroid aneurism, the treatment of which is illustrated by tables of cases of "Carotid Ligation," and a handsome coloured lithograph, giving an accurate representation of a severe form of nævus.

The article on *Aneurism* which follows is by Mr. Richard Barwell, of Charing Cross Hospital, London. In the classification of aneurism the author proposes to discard altogether "false aneurism," and correctly, we think, if by that term are meant those aneurisms in which "one or more of the coats are no longer entire." For it is in many cases manifestly impossible to determine exactly what is the anatomical status of the walls. But in abandoning this term altogether he is involved in difficulties from which we do not think he has been able successfully to extricate himself.

The use of the term "consecutive" for those tumours in which the walls

have partly given way, but are reinforced by inflamed tissues, is confusing; on the other hand, "ruptured" aneurism, when in such an accident a barrier has not been successfully thrown up and the blood has escaped, is a term which explains itself. The difficulties increase when the author attempts to designate what is commonly called traumatic aneurism. He calls the sacculated form traumatic consecutive aneurism, and discards the term traumatic diffuse aneurism, the condition it is intended to describe being to him merely a ruptured artery with interstitial or subfacial hemorrhage. We cannot agree with the author that such conditions necessarily exclude the term aneurism. For some of them the term false aneurism would be eminently appropriate, and we think it unfortunate that the term has not been more generally associated with the traumatic form of aneurism. It is but fair to note here that the author is at pains to point out that many of the so-called idiopathic forms are, strictly speaking, of traumatic origin, being caused by a stretching and partial rupture of the coats of the vessel. It is evident that the nomenclature needs a thorough overhauling, and the author is to be credited at least with an attempt to bring order out of confusion.

Mr. Barwell does not believe in the syphilitic origin of aneurism, the large vessels in which aneurism develops preferably not being the seat of syphilitic affections. Granting the action of the endothelium in the smaller vessels in syphilis as indicated in the previous article, can we safely deny a similar action of the same tissue in the larger vessels in the disease? On the other hand, granting that the endothelium is widely affected in syphilis, will not the absence of symptoms of syphilis in most cases of aneurism indicate that the morbid endothelium is not the potent factor in the development of aneurism assumed by modern pathologists? These are questions which can be answered only when pathology has succeeded in interpreting more clearly the action of the arterial tunics in disease. The section on the diagnosis of aneurism emphasizes the important fact that there is no one symptom on which we can rely, and we find here, as well as elsewhere in this article, striking illustrations of the liability even of the most skilled diagnostician to be misled.

The medical and surgical treatment of aneurism is discussed at length, and this portion of the article forms a most valuable summary for the purpose of reference. We have little to say in the way of criticism, except, perhaps, that more prominence is given to digital pressure than it deserves, and not sufficient emphasis is laid upon the advantages of prolonged etherization in the continuous method of employing pressure. The most interesting feature is the author's account of his ox aorta ligature. This is made from the aorta removed whole from the animal, and cut spirally into tape-like strips. These are stretched and dried, and before use are steeped for an hour in a three-per-cent. solution of carbolic acid. A specimen exhibited by the author at the International Congress in London was thirty-six feet in length. The object of this flat ligature is to approximate without rupturing the walls of the artery, thus imitating, we presume, the effect produced by pressure. It is thought that the dangers of constriction, and ulceration of the walls of the vessels caused by other forms of ligature, are thus avoided. The number of cases in which this ligature has been used is limited; but thus far it has proved very satisfactory. In estimating the dangers of a particular kind of ligature we think the surgeon is liable to err in imagining the ligatured vessel, as it is ordinarily seen in museum preparations, a hollow tube nearly severed

into two separate portions at the point of ligature. A view more in accord with the actual condition of things, if the ligature has been properly applied, would be one which recognized the vessel as a tube buried in a cylindrical mass of tissue (its sheath), capable of solidification into a ligamentous cord for some distance above and below the point of the buried ligature. Ligatures which do not interfere with the rapid organization of the external tissues are as important factors in the problem as those which do not act unfavourably upon the arterial tunics. Of the observations upon aneurisms of various localities the most interesting are those relating to aneurism of the arch of the aorta. The relations of the axes of the innominate and left common carotid to that of the aorta, and the peculiar conformation of the openings of these vessels, and their influence upon the blood-stream, are strikingly illustrated by two interesting diagrams. A thorough appreciation of these points may lead, as the author intimates, to increased success in the treatment of aneurisms of the arch by distal ligature.

The frequent use of the terms which we have already criticized in a preceding article indicates, perhaps, a special adaptation by the author to the wants of the American market.

The only article contributed by a continental surgeon is that by M. Nicaise, of Paris, on *Injuries and Diseases of Nerves*. Not only is this paper interesting for its subject-matter, but also as a contrast in style with the English and American contributions. The strict adherence to traditional modes of mapping out an article has certain great advantages, and is often conspicuously absent in American writings, but in the present case a sacrifice appears thus to have been made in the terseness and vigor of style so characteristic of the best English writers. The Englishman may be weak where the Frenchman is accurate and trustworthy, but the treasures of the latter are liable to be buried in a mass of elaboration, while the former's wares are sure to be exhibited to the best advantage. In the present article, for instance, it has been thought necessary that each particular nerve affection should have its separate section for etiology, pathological anatomy, symptoms, diagnosis, prognosis, and treatment; and inasmuch as there are quite a variety of these, rapidly succeeding each other, one is in danger of losing his way in the labyrinthian sameness of succeeding pages. It is somewhat annoying to find that, after having patiently threaded one's way through a series of primary, secondary, and intermediate symptoms, central and peripheral disturbances, one is only then prepared to be told that "the first symptom experienced in consequence of an injury of a nerve is an acute pain."

The first part of the article is devoted to the varieties of injuries of nerves. Although nice distinctions are drawn between the lesions following crushing, contusion, etc., we fail to find a satisfactory account of the lesions produced by special kinds of injuries, as those met with in railway accidents, for example. There are, however, many excellent features, chief among them being an account of the regeneration of nerves, of nutritive disturbances following nerve injury, and the neuro-paralytic inflammations. The question of the agency of nerve section or injury in producing inflammation is well exposed, and discussed with much fairness. We are not, however, prepared to accept the position apparently taken by the author that the inflammatory changes are not due to nerve lesions. Following an account of neuralgia and nerve tumors is a section devoted to tetanus. The author discusses both the humoral and the nervous theory

of the disease without committing himself to either. The uncertainty of pathological changes is dwelt upon. "The most frequent lesions are those of the spinal cord, but even these may be absent." In discussing the influence of treatment on the disease, he is not inclined to confine its efficacy merely to the relief of pain and asphyxia, but reckons it at its true value, we think, in stating "that treatment may make chronic some cases of tetanus which have begun as acute." Chloral is placed first on the list of remedies, and neurotomy is mentioned favorably as an operative procedure. The closing pages on nerve stretching, suture of nerves, neurotomy, and neurectomy are valuable and interesting.

The closing article of this volume is on *Injuries of the Joints*, by Dr. Edmund Andrews, Professor of Clinical Surgery in the Chicago Medical College. It is well up to the standard of this volume, and is freely illustrated with a good selection of old wood-cuts and many new ones. The greater part of the article is devoted to dislocations, but there are also numerous additional features of interest. The section on bone-setting is one of the best of these. The treatment of sprains is based on sound principles, although we find here the inclination to make applications to the injured joint. The value of rest and the benefits of *massage* are, however, duly dwelt upon. The account of management of incised wounds of the knee-joint is also excellent. Gunshot wounds of the joints are given all the space which the author could allow to that subject, and perhaps as much as could be expected, as they are already included in an article on gunshot injuries in a previous volume.

In conclusion, we may add that this volume is on the whole fully equal if not superior to either of its predecessors, and cannot fail to win a prominent place for the Encyclopædia in surgical literature. J. C. W.

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ART. XXVII.—*Voice, Song, and Speech: A Practical Guide for Singers and Speakers, from the Combined View of Vocal Surgeon and Voice Trainer.* By LENNOX BROWNE, F.R.C.S. Ed., Senior Surgeon to the Central Throat and Ear Hospital, Surgeon and Aural Surgeon to the Royal Society of Musicians; and by EMIL BEHNKE, Lecturer on Vocal Physiology and Teacher of Voice Production. With numerous illustrations by wood-engraving and photography. 8vo. pp. xiv. and 317. London print. New York: G. P. Putnam's Sons, 1884.

MR. LENNOX BROWNE is well known in medical circles as a prominent London laryngologist, and Mr. BEHNKE is equally well known in musical circles as a prominent teacher of vocal culture. Both authors have issued small works on the voice, which have been favourably received. In the work before us they have united their labours to produce an original volume which marks an important epoch in the study of the voice. Mr. Browne's rare artistic skill supplements his professional observations to great advantage; and Mr. Behnke's self-command over his throat and larynx affords unusual facilities, not only for submission of the vocal organs to the inspection of others and to auto-inspection, but for utilization of the camera and the preservation in photographic reprints of the demonstrations he is able